REMARKS

Favorable reconsideration of this application is respectfully requested.

Claims 10-13 are pending in this application. Claims 10 and 11 are allowed. Claim 12 was rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. patent 5,744,395 to Shue et al. (herein "Shue") in view of U.S. patent 5,656,519 to Mogami. Claim 13 was rejected under 35 U.S.C. § 103(a) as unpatentable over Shue in view of Mogami and further in view of U.S. patent 5,554,566 to Lur et al. (herein "Lur").

Initially, applicants gratefully acknowledge the allowance of claims 10 and 11.

Addressing the above-noted rejections, those rejections are traversed by the present response.

Applicants respectfully submit that no motivation exists to combine the teachings in Shue and Mogami in the manner suggested in the Office Action.

According to features set forth in independent claim 12, and claim 13 dependent therefrom, and with reference to Figure 42 in the present specification as a non-limiting example, a MIS transistor includes a silicon substrate 1, a gate electrode 5, and L-shaped sidewalls 55 that are higher than a silicide portion 56 of the gate electrodes. Further, impurity regions 8 are formed opposed to the gate electrode 5 with respect to the sidewalls 55, and each of the impurity regions 8 has a silicide surface 56.

The outstanding rejection recognizes that Shue is deficient in not disclosing sidewalls higher than a silicide portion of a gate electrode.[1] To overcome the recognized deficiencies in Shue the outstanding rejection cites the teachings in Mogami, and states:

> Mogami discloses a MIS transistor comprising the sidewalls (9) formed on both sides of a gate electrode, wherein the sidewall is higher than the silicified portion (24a) of the gate electrode. See Mogami's Fig. 2F.

[1] Office Action of May 6, 2004, page 2, last paragraph.

> It would have been obvious to one of ordinary skill in the art to form the sidewall being higher than the silicified portion of the gate electrode as taught by Mogami into Shue et al.'s device in order to prevent the short circuit between the gate electrode and the impurity region. See Mogami's col. 4 lines 33-40.[2]

In response to the above-noted basis for the outstanding rejection, applicants first note that the motivation noted above, i.e. "to prevent the short circuit between the gate electrode and the impurity regions", to modify Shue to include higher sidewalls is not relevant in the device of Shue. More specifically, Shue already discloses a structure therein to prevent such a short circuit. Specifically, Shue discloses a structure and method of forming a semiconductor device that initially lays down a titanium layer 10. Shue then discloses that complete removal of that titanium layer 10, in conjunction with having a composite spacer formed of elements 7 and 8, can prevent a bridging phenomena or electrical leakage paths between a polycide structure and source and drain regions.[3] At the noted portion in Shue, Shue discloses a specific structure to address avoiding a short circuit.

In such ways, as Shue already addresses how to avoid a short circuit, Shue has no need whatsoever to incorporate the structure disclosed by Mogami as such a structure would not add anything to Shue. Stated another way, Shue does not need to utilize a structure such as in Mogami with a higher sidewall because Shue already addresses a structure to prevent the noted short circuit. Thus, the teachings in Mogami do not add anything to, and thereby do not have any relevance to, the teachings in Shue.

Further, applicants respectfully submit that the reason noted in the Office Action to combine the teachings in Mogami in view of Shue is clearly just a hindsight reconstruction of applicants' invention that is not based on any disclosure in any prior art. More specifically, for Shue to utilize a higher sidewall structure such as in Mogami, Shue would have to etch

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[2] Office Action of May 6, 2004, page 3, first two paragraphs.
[3] See specifically Shue at col. 4, line 64 to col. 5, line 2.

away part of the silicon gate structure 5 after the structure shown in Figure 3 was realized. That is, the only way that Shue could end up with a device with higher sidewalls would be after the structure shown in Figure 3 is realized to etch away a portion of the silicon gate structure 5 to be below the sidewalls 7 and 8. Clearly no motivation exists to modify Shue to incorporate such an additional operation step. The basis for the outstanding rejection is only focusing on an end structure of a sidewall being higher than that of a gate structure without considering the significant modifications in the entire manufacturing process needed in the teachings of Shue to realize such a structure. Clearly it would only be a hindsight reconstruction that would lead one of ordinary skill in the art to modify Shue to etch away a part of the gate structure 5 after the device shown in Figure 3 was realized. Shue does not suggest any desire or reason to incorporate such an operation. Clearly there is no incentive to one of ordinary skill in the art to incorporate such an additional operation in Shue, and clearly no teachings in Mogami teach or suggest such a required modification to the teachings in Shue.

Moreover, although Shue discloses an L-shaped oxide film in Figure 5, the silicidation process is performed in the presence of a composite insulator spacer including both a nitride film 8 and the L-shaped oxide film 7. In contrast to that operation in Shue, a sidewall 9 of Mogami is not a composite insulator spacer and thus does not pattern a sidewall. Therefore, even assuming for the sake of argument that the claimed configuration can be obtained by incorporating teachings of Mogami into Shue, in view of Figures 8D and 8E of Mogami, the silicidation process of Shue should be performed for the oxide film 7 (of an L-shape, without the presence of the nitride film 8), rather than to the composite insulator spacer (films 7 and 8).

Shue discloses at column 5, lines 1-2 that the composite spacer is to avoid the bridging mechanism. Therefore, even though acknowledging the issue of preventing a short

between the gate electrode and source and drain regions, removal of the nitride film 8 in Shue prior to the silicidation process would contradict the purpose of the composite spacer.

In such ways, simply applying the processes of Mogami to Shue results in ignoring the function of the composite spacer of Shue.

Further, if the fact that in the silicidation process of Mogami excess Ti 12 is removed ***without patterning a side wall*** is excluded, and only the content of that side wall and the gate electrode are covered with the Ti 12 and excess Ti 12 is removed to be incorporated into Shue, such reliance on a completely isolated teaching improperly manipulates the teachings of Mogami and clearly results only in a hindsight reconstruction of applicants' invention that is not based on the overall teachings in the references themselves.

In such ways, applicants respectfully submit that for the foregoing reasons one of ordinary skill in the art would not have been motivated to modify Shue in view of the teachings of Mogami in the manner suggested in the Office Action. Absent such a modification, the combination of teachings in Shue and Mogami does not teach or suggest the claimed features.

Moreover, no teachings in Lur address the above-noted features.

Thereby, applicants respectfully submit that independent claim 12, and claim 13 dependent therefrom, distinguish over the applied art.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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